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KANG LIM
3494 CAMINO TASSAJARA ROAD #436
DANVILLE, CA 94506

EXAMINER
ROBERTSON, DAVID

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _31 July 2008_.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-17 and 19-36_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-17 and 19-36_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _7/12/04_.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   This is a Final office action in response to Applicant's reply of 7/31/2008.

Claims 1-17 and 19-36 are pending.

Response to Amendment

2.   Applicant amends claim 1 now reciting a *computerized* price optimization

system....*including computer-readable code...* to address rejections made under 35

U.S.C. 101 and 112 for lack of structure for the "engine" elements of system claims 1-4,

9, 10, 15, 19, 20, and 25-27.   While Applicant's remarks (pages 11-12) demonstrate the

intent of a system comprising a computer, Applicant has not so claimed. Applicant

instead confirms (Remarks, pg. 12, 2nd paragraph) that the claimed invention is a

system of "engines" implemented as hardware or software or firmware. As such, the

system(s) as claimed remains *software per se* and is non-statutory under U.S.C. 101.

However, as it is clear what Applicant intends, rejections under U.S.C. 112 on this point

are withdrawn.

3.   Applicant's response to the Rule 1.105 Requirement for Information is deemed

adequate for the purposes intended. Applicant states that the claimed subject matter

has been implemented in the "Demandtec Promotion" service offered to its customers,

however, without giving a date of the offering (Remarks, page 17).

Response to Arguments

4.   Applicant's arguments filed 7/31/2008 have been fully considered by are not persuasive:

Applicant argues none of Boyd or Dvorak or LoPresti teaches or suggests the newly presented limitation *generating an equivalent price and an equivalized unit using an equivalizing factor* as recited in claim 28 and claims 29-36 depending therefrom. Applicant cites support for this limitation at page 19, lines 1-20 and pages 35-37 of the specification.

However, Applicant's definition and examples given for "equivalizing" for generating an equivalized price and unit appears nothing more than performing analysis of price per quantity based on a unit of a good where the good can be sold (as in retail) in different sizes. Therefore, at least with respect to the obviousness of determining price according to standard units, the limitation *generating an equivalent price and an equivalized unit using an equivalizing factor* would not appear to provide patentable distinction over the prior art of record.

Accordingly, this new limitation of claim 28 is addressed in the updated rejections to follow.

5.   Applicant does not traverse Examiner's assertion of facts by official notice in the prior office action. Because Applicant has not specifically pointed out any errors in the Examiner's taking of Official Notice, the officially noticed facts are deemed admitted prior art. See MPEP § 2114.03 (C).

Claim Rejections - 35 USC § 101

6.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

7.   Claims 5-8, 11-14, 16, 17, 21-24, and 28-36 (all method claims) are rejected

under 35 U.S.C. 101 based on Supreme Court precedent, and recent Federal Circuit

decisions. For a process to be patentable subject matter under § 101 the process must

(1) be tied to another statutory class of invention (such as a particular apparatus) or (2)

transform subject matter to a different state or thing. See Diamond v. Diehr, 450 US

175, 184 (1981); Parker v Flook, 437 US 584, 588 n9 (1978); Gottschalk v. Benson, 409

U.S. 63, 70 (1972); Cochrane v. Deener, 94 US 780, 787-88 (1876). If neither of these

requirements is met by the claim, the method is not a patent eligible process. To qualify

under § 101 as a statutory process, the claim should positively recite the other statutory

class (the thing or product) to which it is tied, for example by identifying the apparatus

that accomplishes the method steps, or positively recite the subject matter that is being

transformed, for example by identifying the material that is being changed to a different

state.

       In the present case, none of the method (process) claims transform subject

matter to a different state or thing, or recite a sufficient tie to another statutory class of

invention, such as a particular apparatus. Nominal recitation of a *computer-

implemented method* does not alone create a sufficient tie to a particular apparatus

because all of the steps of the method may still be performed by a human, by hand, or

by mental steps, or by using a computer for some nominal activity such as data

gathering or display. Lacking such sufficient tie, the claims are ineligible for patenting

under U.S.C. 101.

8.   Claims 1-4, 9-10, 15, 19-20, and 25-27 (all system claims) are rejected under 35

U.S.C. 101 because it does not recite subject matter within one of the statutory classes.

Claim 1 recites a series of engines (i.e. econometric engine, financial model engine, and

promotional engine). Engines are portions of programs, and thus the body of claim 1 is

construed as software per se. Claims 2-4, 9-10, 15, and 19-20 depend from claim 1 and

therefore have the same deficiencies. Computer programs and software are merely a

set of instructions capable of being executed by a computer. Without specific language

stating that a computer or computer processor is actively executing the computer

program/software, computer programs and software are not considered to be statutory

processes or machines. Therefore, there must be some functional act performed by a

computer or computer element on the software/computer program to impart statutory

subject matter. Therefore, it is respectfully submitted that claims 1-4, 9-10, 15, 19-20,

and 25-27 are directed towards non-statutory subject matter.

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

10.   Claims 1-17 and 19-36 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Boyd et al. (U.S. 7,072,848) in view of Dvorak (U.S. 7,155,402) in

further view of LoPresti ("New SPSS Missing Value Analysis Option").

       (Claim 28 is a method claim having similar but broader scope than claim 1 and

so is addressed first, followed by the system claims.)

       As per claim 28, Boyd et al. teaches a computer-implemented method for

creating a promotional event calendar, useful in association with at least one store, the

computer- implemented method comprising: modeling sales as a function of price to

create a sales model, wherein the sales model includes base price variable and

promotional variable (See column 1, lines 60-67, column 2, lines 8-30, column 4, lines

9-20, 38-40, and line 63-column 5, line 3, and column 7, lines 1-20, wherein sales is

modeled by the system considering price (historical purchases, current price, competitor

price, promotional price) as well as promotion information (past, current, and proposed

promotions and incentives)); modeling costs to create a cost model (See at least

column 3, line 60, column 4, lines 15- 20, and column 14, lines 44-58, disclosing a cost

structure model and consideration of costs); receiving cost model and sales model (See

abstract, figure 1A, column 2, lines 18-33, column 3, lines 52-65, column 4, lines 5-15,

wherein the data is received); analyzing a plurality of offers, a plurality of promotional

events, conditions from at least one manufacturer, and constraints from the at least one

store (See column 1, lines 60-67, column 2, lines 8-30, column 4, lines 63-67, column 5,

lines 29-35, column 7, lines 1-25, column 13, lines 1-20, which disclose offers and

promotions (incentives, but monetary and non-monetary). See also column 11, lines 60-

67, column 14, lines 20-40, column 17, lines 10-30 and line 58, and column 20, lines 24-30, which discloses constraints at stores and manufacturers); and choosing promotional events by optimally matching offers with promotional events (See column I, lines 60-67, column 2, lines 8-30, column 3, lines 35-45 and line 61, column 14, line 60-column 15, line 5 and lines 40-65, column 16, lines 43-55, wherein optimal promotional events are chosen).

However, while Boyd et al. discloses inputting historical and other data into the system (See column 2, lines 20-25, and column 4, lines 5-15) and while Boyd et al. discloses choosing promotional events (see above), Boyd et al. does not expressly disclose imputing variables with respect to input data or creating a promotional event calendar for the chosen promotional events.

Dvorak teaches creating a promotional event calendar for the chosen promotional, events (See column 3, lines 20-30, column 4, line 63-column 5, line 15, column 11, lines 40-55, which discloses a promotional event causal calendar displaying promotional events). However, Dvorak does not expressly disclose imputing variables.

LoPresti discloses an imputed variable generator and imputing variable values in data sets when data is missing (See page 1, sections 1-2, and page 2, sections 1-2, wherein a data set is utilized for a study and missing data is imputed so the missing data can be replaced). However, LoPresti et al. does not expressly disclose receiving and analyzing constraints from the at least one store wherein the constraints include a linear constraint and a nonlinear constraint.

Both Boyd et al. and Dvorak teach consideration of promotional events. Boyd et al. is specifically concerned with analyzing, evaluating, optimizing, and choosing promotions based on factors such as price, cost, constraints, etc. Dvorak teaches displaying such promotions on a calendar related to the vendors.   Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a calendar for the optimally determined promotions of Boyd et al. in order to increase the value of the system output to the user by displaying it in a way for user insight. See column 2, lines 5-20, of Boyd et al. which discloses the importance of valuable insight gained from the promotion program. Further, Boyd et al. discloses inputting data into the promotion program, where the data may not be as complete as desired. See at least column 2, lines 5-20, and column 4, lines 7-15.

LoPresti specifically discloses using imputation to fill in missing values in a data set so that the data can be used. It would have been obvious to one of ordinary skill in the art at the time of the invention to use imputation on missing values in the input of Boyd et al. in order to increase the value and the accuracy of the analysis performed by creating a more useful data set for the study. See page 1, section 1, of LoPresti and column 2, lines 5-20, column 4, lines 7-15, of Boyd et al.

Further Boyd et al. does not expressly disclose *generating an equivalent price and an equivalized unit using an equivalizing factor.*

Official notice is taken that it is old and well known to perform price analysis of a quantity of a good based on a standard unit of a good where the good can be sold in different sized quantities. Such standardized ("equivalized") analyses lead to more

accurate analyses as costs to produce goods depends on the quantity of the good sold. It would have been obvious to one of ordinary skill in the art at the time of invention for a user of Boyd to make such price analyses based on an "equivalized" price and an equivalized unit using an equivalizing factor (the basic math of unit conversion), as this would have been known to lead to more accurate price analyses and thus better price recommendations.

As per claim 29, Boyd et al. teaches wherein promotional events are subject to the conditions/constraints from the at least one store (See column 5, line 54, column 14, lines 20-40, column 15, lines 1-15, column 16, lines 5-14 and 43-55, and column 17, lines 1-30 and line 58). However, Boyd et al. does not expressly disclose a promotional event calendar or whether the presented constraints are linear or nonlinear.

Dvorak teaches creating a promotional event calendar for the chosen promotional events (See column 3, lines 20-30, column 4, line63-column 5, line 15, column 11, lines 40-55, which discloses a promotional event causal calendar displaying promotional events). However, Dvorak does not expressly disclose linear or nonlinear constraints, nor does LoPresit.

Both Boyd et al. and Dvorak teach consideration of promotional events. Boyd et al. is specifically concerned with analyzing, evaluating, optimizing, and choosing promotions based on factors such as price, cost, constraints, etc. Dvorak teaches displaying such promotions on a calendar related to the vendors. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a calendar for the optimally determined promotions of Boyd et al. in order to increase the

value of the system output to the user by displaying it in a way for user insight. See

column 2, lines 5-20, of Boyd et al. which discloses the importance of valuable insight

gained from the promotion program. Further, Boyd et al. discloses store constraints.

Examiner takes official notice that it is old and well known in operations research

to use linear and non-linear constraints. Therefore, it would have been obvious to one of

ordinary skill in the art at the time of the invention to include that the constraints taught

by Boyd et al. are linear and non-linear in order to more accurately perform the analysis

by using known techniques for considering Constraints.

As per claim 30, Boyd et al. teaches: computing a score for each offer of the

plurality of offers and each event of the plurality of promotional events, wherein each

event include at least one type of promotional vehicle, and wherein each offer includes

at least one promotional vehicle requirement (See column 1, lines 60-67, column 2,

lines 8-30, column 4, lines 63-67, column 5, lines 29-35, column 7, lines 1-25, column

13, lines 1-20, wherein promotional events are both financial and non-financial events

and offers are the values of these event types. See also column 15, lines 1-20. See

column 11, i lines 20-35, column 21, lines 35-50, column 23, lines 20-26, which disclose

vehicle considerations); selecting a combination of offers from the plurality of offers, and

events from the plurality of promotional events to form a subset of offers and events

(See at least column 1, lines 60-67, column 2, lines 8-30, column 13, lines 1-20, column

15, lines 1-20, wherein combinations of offers and events are selected. See column 11,

lines 20-35, column 20, lines 20- 35, column 21, lines 35-50, column 23, lines 20-26);

reconciling the type of promotional vehicle with the promotional vehicle requirements for

the offers and events within the subset of offers and events (See column 11, lines 20-35, column 21, lines 35-50, column 23, lines 20-26); and utilizing the subset of offers and events, and reconciled type of promotional vehicle and promotional vehicle requirements to choose promotions (See column 1, lines 60-67, column 2, lines 8-30, column 3, lines 35-45 and line 61, column 14, line 60-column 15, line 5 and lines 40- 65, column 16, lines 43-55, wherein optimal promotional events are chosen). However, Boyd et al. does not expressly disclose a promotional event calendar and -constructing such a calendar. Dvorak teaches creating/constructing a promotional event calendar for the chosen promotional events (See column 3, lines 20-30, column 4, line 63-column 5, line 15, column 11, lines 40-55, which discloses a promotional event causal calendar displaying promotional events).

Both Boyd et al. and Dvorak teach consideration of promotional events. Boyd et al. is specifically concerned with analyzing, evaluating, optimizing, and choosing promotions based on factors such as price, cost, constraints, etc. Dvorak teaches displaying such promotions on a calendar related to the vendors. It would have been obvious to one of ordinary skill in the art at J the time of the invention to include a calendar for the optimally determined promotions of Boyd et al. in order to increase the value of the system output to the user by displaying it in a way for user insight. See column 2, lines 5-20, of Boyd et al. which discloses the importance of valuable insight gained from the promotion program.

As per claim 31, Boyd et al. teaches wherein computing the score independently computes a value of each offer and a value of each event, and wherein the computing

the score also links each product with one promotional vehicle type of the at least one

promotional vehicle type (See at least column 2, lines 18-33, column 3, lines 45-51,

column 5, lines 17-45, which discloses profits and revenues for a specified period for a

promotion type. See column 1, lines 60-67, column 2, lines 8-30, column 4, lines 63-67,

column 5, lines 29-35, column 7, lines 1-25, column 13, lines 1-20, wherein promotional

events are both financial and non-financial events and offers are the values of these

event types. See also column 15, lines 1-20. See column 11, lines 20-35, column 21,

lines 35-50, column 23, lines 20-26, which disclose vehicle considerations).

As per claim 32, Boyd et al. teaches wherein selecting the combination of offers

and events includes maximizing the sum of the values of the offers and events within

the subset of offers and events, while adhering to the conditions from at least one

manufacturer and the constraints from the at least one store (See also column 11, lines

60-67, Column 14, lines 20-40, column 17, lines 10-30 and line 58, and column 20, lines

24-30, which discloses constraints at stores and manufacturers. See also column 5,

lines 45-55, column 13, lines 1-20, column 15, lines 35-62, and column 16, lines 15-45,

which discloses maximizing profit based on selected promotions and offers).

As per claim 33, Boyd et al. teaches reconciling the type of promotional vehicle

with the promotional Vehicle requirements (See column 11, lines 20-35, column 21,

lines 35-50, column 23, lines 20-26). However, Boyd et al. does not expressly disclose,

nor does Dvorak or LoPresti, solving an integer problem. Further, Boyd et al. discloses

various mathematical algorithms for solving promotional optimization.

Examiner takes <u>official notice</u> that it is old and well known in operations research

to use inter programming to solve such problems. Therefore, it would have been

obvious to one of ordinary skill in the art at the time of the invention to include inter

programming in the mathematical algorithms of Boyd et al in order to more accurately

perform the analysis by representing the values by integers, thus more accurately

modeling the true retail environment.

As per claim 34, Boyd et al. teaches setting the promotion levels of each product

and computing the resulting profit over a promotional period (See at least column 2,

lines 18-33, column 3, lines 45-51, column 5, lines 17-45, which discloses profits and

revenues for a specified period). However, Boyd et al. does not expressly disclose a

promotional event calendar and constructing such a calendar.

Dvorak teaches creating/constructing a promotional event calendar for the

chosen promotional events (See column 3, lines 20-30, column 4, line 63-column 5, line

15, column 11, lines 40-55, which discloses a promotional event causal calendar

displaying promotional events). However, Dvorak does not expressly disclose linear or

nonlinear constraints. Both Boyd et al. and Dvorak teach consideration of promotional

events. Boyd et al. is specifically concerned with analyzing, evaluating, optimizing, and

choosing promotions based on factors such as price, cost, constraints, etc. Dvorak

teaches displaying such promotions on a calendar related to the vendors.

It would have been obvious to one of ordinary skill in the art at the time of the

invention to include a calendar for the optimally determined promotions of Boyd et al. in

order to increase the value of the system output to the user by displaying it in a way for

user insight. See column 2, lines 5-20, of Boyd et al. which discloses the importance of valuable insight gained from the promotion program.

Claim 1 is substantially similar to the combination of claims 28 and 29 and is therefore rejected using the same art and rationale set forth above. Boyd et al. further teaches engines and modules in a computing environment (See figure 1A and column 3, lines 35-65).

Boyd et al. further teaches wherein the creating of the sales model comprises: creating a plurality of demand groups, wherein each demand group is a set of at least one product and wherein at least one of the demand groups is a set of at least two substitutable products and creating a sales model for each demand group (See column 5, lines 4-16, column 6, lines 25-45, column 7, lines 25-50, column 8, lines 10-30, and 45-62, and column 15, lines 40- 64, wherein demand groups and market share is concerned, the groups centered around a product and competing product for a segment. This is modeled).

As per claim 2, Boyd et al. discloses wherein the promotional engine further comprises a temporary price reduction optimizing engine configured to optimize temporary price reduction prices after the promotional events and offers have been selected (See also column 5, lines 45- 55, column 13, lines 1-20, column 15, lines 1-25 and 35-62, and column 16, lines 15-45, which discloses maximizing profit based on selected promotions and offers.).

As per claim 3, Boyd et al. does not expressly disclose and Dvorak discloses providing a support tool connected to the promotional engine wherein the support tool is

configured to receive the promotional event calendar from the promotional engine and

provide a user interface to a client, wherein the user interface provides the promotional

event calendar to the client (See figures 8-12, column 3, lines 20-30, column 4, line 63-

column 5, line 15, column 11, lines 40-55, which discloses a promotional event causal

calendar displaying promotional events). Both Boyd et al. and Dvorak teach

consideration of promotional events. Boyd et al. is specifically concerned with analyzing,

evaluating, optimizing, and choosing promotions based on factors such as price, cost,

constraints, etc. Dvorak teaches displaying such promotions on a calendar related to

the vendors.

It would have been obvious to one of ordinary skill in the art at the time of the

invention to include a calendar for the optimally determined promotions of Boyd et al. in

order to increase the value of the system output to the user by displaying it in away for

user insight. See column 2, lines 5-20, of Boyd et al. which discloses the importance of

valuable insight gained from the promotion program.

As per claim 4, Boyd et al. discloses wherein the promotional engine calculates

the value of offers and the value of promotional events by using the financial model and

sales model and selects combinations of the offers and the promotional events (See

column 1, lines 60-67, column 2, lines 8-30, column 4, lines 63-67, column 5, lines 29-

35, column 7, lines 1-25, column 13, lines 1-20, wherein promotional events are both

financial and non-financial events and offers are the values of these event types).

Claim 5 is substantially similar to the combination of claims 28 and 29 and is

therefore rejected using the same art and rationale set forth above. Boyd et al. further

teaches a computing environment (See at least figure 1A and column 3, lines 35-65)

and determining the value of offers and promotional events and selecting combinations

of the offers and promotional events based on the determined values (See at least

column 1, lines 60-67, column 2, lines 8-30, column 13, lines 1-20, column 15, lines 1-

20, wherein combinations of offers and events are selected. See column 11, lines 20-

35, column 20, lines 20-35, column 21, lines 35-50, column 23, lines 20-26).

Boyd et al. further teaches wherein the creating of the sales model comprises:

creating a plurality of demand groups, wherein each demand group is a set of at least

one product and wherein at least one of the demand groups is a set of at least two

substitutable products and creating a sales model for each demand group (See column

5, lines 4-16, column 6, lines 25-45, column 7, lines 25-50, column 8, lines 10-30, and

45-62, and column 15, lines 40- 64, wherein demand groups and market share is

concerned, the groups centered around a product and competing product for a

segment. This is modeled).

As per claim 6, Boyd et al. teaches wherein the creating of the sales model

comprises creating a market share model for each product in each demand group (See

column 7, lines 25-50, column 8, lines 10-30, and 45-67, and column 15, lines 40-64,

wherein demand groups and market share is concerned, the groups centered around a

product and competing product for a segment. This is modeled).

As per claim 7, Boyd et al. discloses the step of estimating net profit from the

selected combination of offers and promotional events using the sales model and cost

model (See at least column 2, lines 18-33~ column 3, lines 45-51, column 5, lines 17-45, which discloses profits and revenues for a specified period).

Claim 8 recites equivalent limitations to claims 5-7 above and is therefore rejected using thee same art and rationale applied above.

As per claim 9, Boyd et al. discloses wherein Constraints from the at least one store, including inventory, and ad and display type incentives (See column 6, line 65-column 7, line 25, which discloses ad and display consideration. See column 5, line 54, column 14, lines 20-40, column 15, lines 1-15, column 16, lines 5-14 and 43-55, and column 17, lines 1-30 and line 58, disclosing store constraints and inventory constraints). However, Boyd et al. does not expressly disclose that the constraint is at least one of display space capacity or ad space capacity determining user input constraints.

Dvorak discloses display space capacity (See at least column 4, line 63-column 5, line 15, which discloses scheduled displays and the inventory of products required to make the display look pleasing). Both Boyd et al. and Dvorak teach consideration of promotional events, as well as displays at the stores where promotional events will occur. Boyd et al. is specifically concerned with analyzing, evaluating, optimizing, and choosing promotions based on factors such as price, cost, constraints, etc. Dvorak teaches displaying such promotions on a calendar related to the vendors. It would have been obvious to one of ordinary skill in the art at the time of the invention to include capacity considerations in the displays of Boyd et al. in order to increase the sales of

the item by making the display pleasing to the customer. See at least column 4, line 63-column 5, line 15, of Dvorak.

As per claim 10, Boyd et al. discloses the constraint from the at least one store including an event type (See column 6, line 65-column 7, line 25, which discloses event types, as well as column 5, line 54, column 14, lines 20-40, column 15, lines 1-15, column 16, lines 5-14 and 43- 55, and column 17, lines 1-30 and line 58).

Claims 11 and 13 recite equivalent limitations to claim 9 and are therefore rejected using the same art and rationale applied above.

Claims 12 and 14 recite equivalent limitations to claim 10 and are therefore rejected using the same art and rationale applied above.

Claim 15 is substantially similar to the combination of Claims 29 and 33 and is therefore rejected using the same art and rationale set forth above.

Claims 16 and 17 recite equivalent limitations to claim 15 and are therefore rejected using the same art and rationale applied above.

As per claims 19, 21, and 23, Boyd et al. teaches wherein the conditions from the at least one manufacturer include providing at least one of a promotional event and a specific amount of promotion (See column 5, lines 29-35, column 11, lines 60-67, column 14, lines 20-40, column 17, lines 10-30 and line 58, and column 20, lines 24-30, which discloses constraints the retailer receiving excess inventory and other manufacturer conditions).

As per claim 20, 22, and 24, Boyd et al. teaches conditions from the at least one manufacturer and promotional events for a competitor's product (See column 4, lines

45-32, column 7, lines 25-50, which discloses competitor considerations, the products

they order, and their market size and share; this data on orders is obtained from a third

party). However, none of Boyd et al., Dvorak, or LoPresti disclose that the conditions

from the at least one manufacturer include not providing a promotional event for a

competitor's product (i.e. the manufacturer provides competitor's their products).

Both Boyd et al. and Dvorak teach consideration of promotional events. Boyd et

al. is specifically concerned with analyzing, evaluating, optimizing, and choosing

promotions based on factors such as price, cost, constraints, etc. Examiner takes

official notice that it is old and well known to provide market research on competitor's,

such as who is provided them their products.

It would have been obvious to one of ordinary skill in the art at the time of the

invention to include in considerations of whether or not the manufacturer is providing

competitor's their products in order to increase the value of the system output to the

user by including all relevant market input concerning competitors. See column 2, lines

5-20, of Boyd et al.

As per claims 25-26, Boyd et al. teaches modeling sales as a function of price to

create a sales model, including inputting price and promotional considerations (See

column 1, lines 60- 67, column 2, lines 8-30, column 4, lines 9-20, 38-40, and line 63-

column 5, line 3, and column 7, lines 1-20, wherein sales is modeled by the system

considering price (historical purchases, current price, competitor price, promotional

price) as well as promotion information (past, current, and proposed promotions and

incentives)). Further, Boyd et al. discloses base prices (See column 14, lines 45-57).

However, Boyd et al. does not expressly disclose, nor does Dvorak, imputing the variables.

LoPresti discloses an imputed variable generator and imputing variable values in data sets when data is missing (See page 1, sections 1-2, and page 2, sections 1-2, wherein a data set is utilized for a study and missing data is imputed so the missing data can be replaced). However, LoPresti et al. does not expressly disclose receiving and analyzing constraints from the at least one store wherein the constraints include a linear constraint and a nonlinear constraint. Boyd et al. and Dvorak are combinable for the reasons set forth above. Boyd et al. discloses inputting data into the promotion program, where the data may not be as complete as desired. See at least column 2, lines 5-20, and column 4, lines 7-15. LoPresti specifically discloses using imputation to fill in missing values in a data Set so that the data can be used.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use imputation on missing values in the input of Boyd et al. in order to increase the value and he accuracy of the analysis performed by creating a more useful data set for the study. See page 1, section 1, of LoPresti and column 2, lines 5-20, column 4, lines 7-15, of Boyd et al.

As per claim 27, Boyd et al. teaches a sales model created by an econometric engine (See column 1, lines 60-67, column 2, lines 8-30, column 4, lines 9-20, 38-40, and line 63-column 5, line 3, and column 7, lines 1-20, wherein sales is modeled by the system considering price (historical purchases, current price, competitor price, promotional price) as well as promotion information (past, current, and proposed

promotions and incentives)). However, none of Boyd et al, Dvorak, or LoPresti

expressly discloses that the sales model created includes Bayesian Shrinkage

modeling.

Both Boyd et al. and Dvorak teach consideration of promotional events, and are

combinable for the reasons discussed above. Boyd et al. is specifically concerned with

analyzing, evaluating, optimizing, and choosing promotions based on factors such as

price, cost, constraints, etc. Boyd et al. teaches optimization algorithms that include

constraints. Examiner takes official notice that Bayesian Shrinkage algorithms are old

and well known in the art as an efficient way for generating estimates. It would have

been obvious to one of ordinary skill in the art at the time of the invention to use

Bayesian Shrinkage modeling in the system of Boyd et al. in order to more efficiently

select the best promotions using the provided inputs.

11.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dave Robertson whose telephone number is (571)272-8220. The examiner can normally be reached on 8 am to 6 pm, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Albert DeCady/
Supervisory Patent Examiner, Art
Unit 2121

/Dave Robertson/
Examiner, Art Unit 2121